

### Claims

What is claimed is:

- 1 1. A method for testing circuit components comprising:
  - 2 moving a test stage under a first camera, wherein said test stage contains
  - 3 a test pedestal adapted to hold at least one test bar and at least one tray
  - 4 containing at least one test bar, each test bar containing at least one circuit
  - 5 component;
  - 6 visually aligning, with said first camera, a pickup collet with a selected
  - 7 one of said at least one test bar;
  - 8 picking up said selected test bar with said pickup collet;
  - 9 visually aligning, with said first camera, said test pedestal; and
  - 10 positioning said selected test bar on said test pedestal;
  - 11 moving said test stage under a second camera; and
  - 12 visually aligning, with said second camera, said selected test bar with a
  - 13 test site.
- 1 2. A method in accordance with claim 1, further comprising:
  - 2 visually aligning, with said second camera, a selected circuit component
  - 3 contained in said selected test bar with said test site; and
  - 4 testing said selected circuit component.
- 1 3. A method in accordance with claim 2 further comprising:
  - 2 subsequent to testing said selected circuit component, moving said test
  - 3 stage under said first camera;
  - 4 visually aligning, with said first camera, said test pedestal;

5           picking up the selected test bar with said pickup collet;  
6           visually aligning, with said first camera, another one of said at least one  
7   tray with said pickup collet, said another one of the at least one tray being an  
8   output tray; and  
9           positioning said selected test bar on said output tray.

1   4.   A method in accordance with claim 1 further comprising:

2           positioning said pickup collet at a first collet position prior to moving  
3   said test stage under said first camera; and

4           positioning said pickup collet at a second collet position prior to picking  
5   up said selected test bar with said pickup collet and positioning said selected  
6   test bar on said test pedestal.

1   5.   A method in accordance with claim 1, wherein the steps of moving the  
2   test stage comprise moving the test stage to predetermined coordinates, and the  
3   steps of visually aligning comprise processing a camera image.

1   6.   A method in accordance with claim 1, wherein said circuit components  
2   comprise optical devices.

1   7.   A method in accordance with claim 1, wherein said at least one test bar  
2   further comprises an identification code.

1   8.   A method in accordance with claim 7 further comprising acquiring an  
2   image, with said first camera, of said identification code.

1   9.   A test fixture for testing circuit components, said fixture comprising:

2           at least one test bar, each test bar containing a plurality of circuit  
3   components;

4           at least one tray, each tray containing a plurality of test bars;

5 a test pedestal adapted to hold at least one test bar;

6 a transportable test stage comprising said at least one tray and said test  
7 pedestal, wherein said at least one tray and said test pedestal are in a fixed  
8 position with respect to said test stage;

9 a pickup collet for picking up and placing said at least one test bar;

10 a first camera for performing visual alignment with said pickup collet;

11 and

12 a second camera for visually aligning said circuit component with a test  
13 site.

1 10. A test fixture in accordance with claim 9, wherein said circuit  
2 components comprise optical devices.

1 11. A test fixture in accordance with claim 10, wherein said optical devices  
2 comprise at least one of a laser diode and a wavelength division multiplexer.

1 12. A test fixture in accordance with claim 9, wherein each circuit  
2 component comprises at least one test pad for making contact with test probes  
3 at said test site, the surface area of each test pad being approximately  $2.5 \times 10^{-3}$   
4 square inches.

1 13. A test fixture in accordance with claim 9, wherein said plurality of test  
2 bars contained by each tray is held in place by a vacuum.

1 14. A test fixture in accordance with claim 9, wherein said at least one test  
2 bar contained by said test pedestal is held in place by a vacuum.

1 15. A test fixture in accordance with claim 9, wherein said plurality of  
2 circuit components contained by each test bar is held in place by a vacuum.

1 16. A test fixture in accordance with claim 9, wherein said test bar is held in  
2 contact with said pickup collet by a vacuum.

- 1 17. A test fixture in accordance with claim 9, wherein said at least one test  
2 bar comprises an identification code.
- 1 18. A test fixture in accordance with claim 9, wherein said at least one tray  
2 is held in contact with said test stage by a vacuum.
- 1 19. A test fixture in accordance with claim 9, wherein the test stage is  
2 moved to predetermined coordinates, the pickup collet is aligned with the test  
3 pedestal and each tray by processing a camera image, and said test pedestal is  
4 aligned with said test site by processing a camera image.
- 1 20. A test fixture in accordance with claim 9, wherein said test site  
2 comprises at least one of a front light detector, a rear light detector, and a  
3 spectroscopic lens.
- 1 21. A test fixture in accordance with claim 9, wherein said test pedestal  
2 comprises a cooling device for maintaining a test bar placed on said test  
3 pedestal at an approximately constant temperature.
- 1 22. A test fixture in accordance with claim 21, wherein said temperature is  
2 25° Centigrade.